

Patent

REMARKS

Claims 1-5, 13 and 14 are currently pending in this application. Claims 6-12 and 15 were previously withdrawn. Claims 1-5 have been amended. No new matter has been added by these amendments. Applicant has carefully reviewed the Office Action and respectfully requests reconsideration of the claims in view of the remarks presented below.

35 U.S.C. § 102 Rejections

Claims 1, 3 and 14 were rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent Publication 2005/0065443 (Ternes).

Independent claim 1 relates to an implantable cardiac device that determines heart rate recovery of a patient. While "implantable cardiac device" is recited in its preamble, claim 1 has been amended to further recite "implantable cardiac device" in claim elements in order to emphasize the implant aspect of the invention. Specifically, claim 1 recites recording a monitored heart rate in the implantable cardiac device as a first heart rate when at least one of the following conditions occurs: (i) at least one heart rate measurement exceeds a first heart rate measurement threshold and (ii) an activity level of the patient exceeds a first activity threshold; recording a monitored heart rate in the implantable cardiac device as a second heart rate when at least one of the following conditions occurs: (i) at least one heart rate measurement falls below a second heart rate measurement threshold and (ii) an activity level of the patient falls below a second activity threshold; and using the implantable cardiac device to determine a measure of heart rate recovery based on the first heart rate and the second heart rate and storing the measure of heart rate recovery in the implantable cardiac device.

Ternes discloses a system that collects raw heart-rate data over a period of time in response to heart rate or sensor activity. The raw data is then displayed on an external device in a format from that allows for observation and extraction of particular heart rate information. While Ternes generally discloses the use of an implantable medical device to collect and process heart-rate data (see paragraphs [0034] and [0042]), it does not disclose an implantable cardiac device, which by itself determines a heart rate recovery based on first and second heart rates recorded in the device. The

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Ternes system requires the collection of raw data for a period of time and then external observation and external processing of the collected heart rate data in order to identify a heart rate recovery. See paragraphs [0050] and [0051]. In addition, because Ternes requires external processing to identify a heart rate recovery, it cannot and does not disclose the storage of a determined heart rate recovery in an implantable cardiac device, as further recited in claim 1.

In view of the foregoing, Applicant submits that Ternes fails to teach the invention claimed in independent claim 1. Accordingly, Applicant requests reconsideration of the §102 rejection of claim 1 and its dependent claims.

Regarding dependent claim 3, the collection of heart rate data in Ternes is not dependent on any predetermined time element, as recited in claim 3. Ternes simply collects data for the period of time during which heart rate or sensor activity criteria are met. It is inherent that this time period is variable (not predetermined) because it depends on the activity of a patient. Furthermore, Ternes does not disclose the use of heart rate intensity in any of its processes.

35 U.S.C. § 103 Rejections

Claims 2-5 were rejected under 35 U.S.C. §103(a) as being unpatentable over Ternes in view of U.S. Patent No. 4,393,877 (Imran et al.). Claim 13 was rejected under 35 U.S.C. §103(a) as being unpatentable over Ternes in view of U.S. Patent Publication 2003/0187479 (Thong).

In view of the foregoing analysis of independent claim 1 in view of Ternes, Applicant believes that the rejections under §103 are rendered moot as dependent claims 2-5 and 13 depend from an allowable independent claim.

Further regarding the rejections of claims 2-5, Imran et al. discloses circuitry including a digital rate comparator that outputs a signal each time a heart rate exceeds a programmed rate. A delay circuit receives the comparator output signals and outputs a detector output signal if the number of comparator output signals exceeds a predetermined number in a predetermined time. The value of the predetermined time period is set in order for the delay circuit to fulfill its intended purpose – to prevent

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spurious cardiac signals from erroneously triggering a defibrillation pulse generator. For example, a detector output signal may be provided if two comparator output signals are received within a four second interval. See column 11, line 56 through column 12, line 4.

Claim 2 recites a predetermined period of time sufficient for the heart to react to exercise. This is distinct from the predetermined time period disclosed in Imran et al. which is set to ensure appropriate triggering of a defibrillator pulse generator.

In view of the foregoing, Applicant submits that neither Termes nor Imran et al., either alone or in combination, teach or suggest the predetermined time period claimed in dependent claims 2-5. Accordingly, Applicant requests reconsideration of the §103 rejections of these claims.

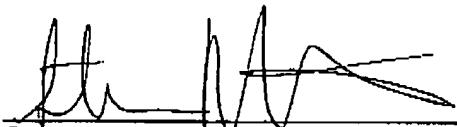
CONCLUSION

Applicant respectfully submits that the present application is in condition for allowance. If the Examiner believes a telephone conference would expedite or assist in the allowance of the present application, the Examiner is invited to call Steven M. Mitchell at (408) 522-6101.

Pursuant to 37 C.F.R. 1.136(a)(3), Applicant hereby requests and authorizes the U.S. Patent and Trademark Office to (1) treat any concurrent or future reply that requires a petition for extension of time as incorporating a petition for extension of time for the appropriate length of time and (2) charge all required fees, including extension of time fees and fees under 37 C.F.R. 1.16 and 1.17, to Deposit Account No. 22-0265.

Respectfully submitted,

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